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| Notice of Allowability | Application No. 09/938,888 Examiner Eric B. Compton | Applicant(s) NISLEY ET AL. Art Unit 3726 |
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to an application filed 8/24/01.
2. The allowed claim(s) is/are 1-24.
3. The drawings filed on 24 August 2001 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____. | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In claim 16, line 4, --the— has been inserted after "shaft."

In claim 22, line 6, --a— has been inserted after "having."

Note: the above changes above were made to merely to resolve minor typographical errors.

2. The following is an examiner's statement of reasons for allowance: a system (and associated methods of assembly and disassembly) of a hollow member (e.g., a bearing) onto a shaft; comprising: a hollow outer member having a tapered surface; a sleeve having a tapered surface; and a locking member (nut) having a threaded inner section configured to mate with an a threaded extension of the sleeve and an eccentric aperture forming a varying depth inner groove configured to mate with a concentric lip of the hollow outer member, in combination with the other claimed subject matter.

Use of tapered surfaces to wedge a bearing on a shaft is well known in the art. The best example is U.S. Pat. 5,709,483 to Martinie, which discloses a similar system (and inherently a method for assembly/disassembly) for securing a shaft within a hollow

member having an inner tapered surface. The system comprises: a shaft (12); a bearing assembly (20) configured for mounting about the shaft, including an inner ring (18) having a tapered surface (30), a cylindrical extension (34) and an annular outer groove (42) forming a lip (34) on the extension; a sleeve (14) configured for assembly between the shaft and inner ring, the sleeve having a tapered outer surface (28) to interface with the tapered inner surface (30) of the inner ring, and inner surface to interface with the shaft (12), and an externally threaded extension (32); and a locking member, e.g., nut (36) having a threaded inner surface (see Fig. 1) for engaging with the threaded extension of the sleeve. "Engaging lip 40 mates with a circumferential receiving groove 42 defined in the outer surface of extension portion 34. As a result of this arrangement, nut 36 will be free to rotate with respect to inner ring 18 as it is received onto the threads of extension portion." Col. 5, lines 54-59. "Specifically, engaging lip 40 may be hooked onto groove 42 during assembly, thereby effecting engagement of the respective mating elements." Col. 5, line 65 – Col. 6, line 1. However, Martinie does not disclose or suggest that the nut includes an eccentric aperture forming an inner groove of varying depth for interfacing with the lip of the inner ring.

Numerous prior art references disclose eccentric collars. See e.g., US Pats. 1,561,443 to Searles; 2,584,740 to Reynolds; 2,740,676 to Potter; 2,786,616 to Potter; 3,036,872 to King, Jr. et al; 3,239,292 to Howe, Jr. et al; 3,521,342 to Van Dorn et al; and 4,164,063 to Cenko et al. However, these references disclose providing both the inner bearing race and a sleeve (or collar) with eccentric surfaces. Rotation of both

surfaces binds the bearing race and the sleeve to the shaft. Unlike these designs, Applicant provides only the nut with an eccentric aperture; not the hollow member.

US Pat. 2,519,927 to Pedu, Jr. discloses an engagement assembly for a wheel to a shaft. The wheel includes an eccentric aperture configured to mate with a lip on a collar (28). However, the reference discloses that the rubber sleeve (29) is placed between the two members. Rotation of the wheel locks the rubber sleeve to the wheel "in such a manner that removal of the support 28 is virtually impossible without the use of tremendous force or the virtual destruction of one or more parts." Col. 3. lines 1-6. However, there is no motivation to combine this reference with the bearing assembling systems noted above.

DE 4107864 and SU 1810630 disclose coupling systems, which rely on eccentric apertures to mate with a groove on a shaft. However, there is no motivation to combine these references with the bearing assembling systems noted above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (703) 305-0240. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter B. Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric Compton
Patent Examiner
Art Unit 3726



DAVID P. BRYANT
PRIMARY EXAMINER